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71 Applicant: HEWLETT-PACKARD COMPANY
3000 Hanover Street
Palo Alto,
California 94304-1181 (US)

72 Inventor: Davidson, Mark N.
2307 Floral Way
Santa Rosa, CA 95403 (US)
Inventor: Hillstrom, Timothy L.
11506-21st Place NE
Lake Stevens, WA 98258 (US)

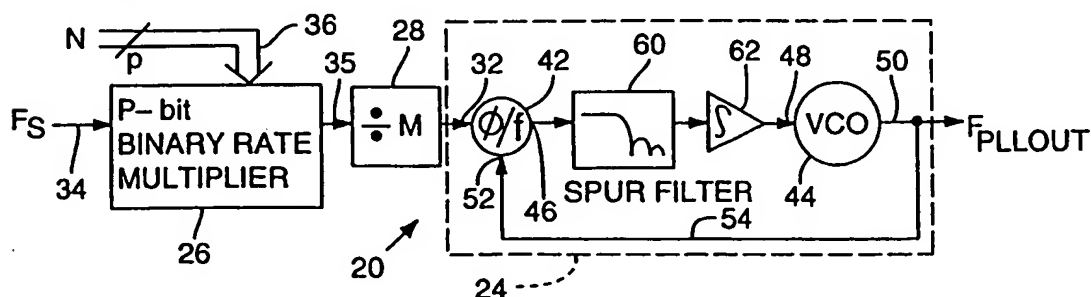
74 Representative: Colgan, Stephen James et al
CARPMAELS & RANSFORD
43 Bloomsbury Square
London WC1A 2RA (GB)

54 Phased locked loop synthesizer using a digital rate multiplier reference circuit.

57 A phase locked loop synthesizer (20) for generating a digitally programmable, continuous wave signal comprises a rate multiplier (26) and divider (28) connected in a reference signal path to a phase detector (42). The rate multiplier and divider generate a reference signal which is programmable to any of a set of regularly spaced frequencies having exact decimal representations. The divider limits the

peak-to-peak phase deviation of the rate multiplier. The phase detector locks a synthesized signal generated by a variable frequency oscillator (44) to the phase of the programmed reference signal. A spur filter (60) connected to the phase detector output (46) reduces spurious frequencies in the phase detector output.

FIG. 1



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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
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Y	US-A-3 651 422 (M. J. UNDERHILL) 21 March 1972 * column 1, line 73 - column 4, line 23; figures *	1,2	
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Y	RADIO AND ELECTRONIC ENGINEER, vol. 48, no. 3, March 1978 LONDON GB, pages 127-132, L. K. REGENBOGEN 'A LOOSE-LOCKED OSCILLATOR' * the whole document *	1,2	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 September 1995	Examiner Balbinot, H
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons ----- @ : member of the same patent family, corresponding document	
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EUROPEAN SEARCH REPORT

Application Number
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A	US-A-3 297 953 (EVAN T. COLTON) 10 January 1967 * column 2, line 27 - column 6, line 63; figures * -----	1,2,5,8	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 September 1995	Examiner Balbinot, H
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure F : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document	